Amendments to the Specification:

Please add the following new paragraph after the paragraph [0016]:

[0008.1] *Integrated circuit placement problem.*- Given a set of circuit blocks the placement problem consists of assigning the blocks to specific locations in the integrated circuit area in such a way that a determined cost function is minimized. One of the most successful algorithms to solve the integrated circuit placement problem is Simulated Annealing.

Please replace paragraph [0017] with the following amended paragraph:

[0017] In many areas of science and engineering arise Combinatorial Optimization (CO) problems. Simulated Annealing (SA) is a general method emerged to solving a large diversity of CO problems. In spite of the SA success, it is a method whose best results depend upon the experience of practitioners. Thus, one of the key [[issue]] issues of SA is the temperature schedule. Usually a large number of empirical studies are required in fine-tuning the temperature schedule parameters.

Please replace paragraph [0018] with the following amended paragraph:

[0018] The present disclosure contains the Thermodynamic Simulated Annealing Schedule (TSAS) method. Such a method provides a thermodynamic temperature schedule for Simulated Annealing. In TSAS, the temperature is updated all along the optimization process as [[to]] the ratio between the accumulated cost and entropy variations. The accumulated entropy variation is measured as the sum over all previous Simulated Annealing iterations of the natural logarithm of the probabilities of acceptance applied.

Please replace paragraph [0044] with the following amended paragraph:

[0044] Substituting the accumulated entropy variation (Eq. 2) and the accumulated cost variation in Eq. 1, we have the thermodynamic annealing schedule given by

Please replace paragraph [0046] with the following amended paragraph:

[0046] where C_0 is the initial cost, C_k the current cost, C_0-C_k the accumulated cost variation, and k_a is a parameter introduced to control the run-time/quality tradeoff. Note that, to avoid singularities and force the minimization, this equation must only be applied when both, C<C and entropy variation is different from zero. Otherwise the initial temperature T must be applied. We can also distinguish two functional modes: adaptive and normal. In the adaptive mode (that must be applied when the search start from a halfway solution) the initial temperature is set to zero. In the normal mode the initial temperature can be selected to a non-zero value. This mode can be applied when the search starts from a random configuration.

Please replace paragraph [0047] with the following amended paragraph:

[0047] A preferred embodiment of the present disclosure is the Thermodynamic Simulated Annealing Schedule applied to the integrated circuit placement problem. Figure 1 shows an example of the optimization development with Thermodynamic Simulated Annealing Schedule with respect to a common Simulated Annealing schedule ($T_{i+1}=aT_i$ $0<a<1$) for the integrated circuit placement problem. Note that the cost with TSAS drops faster while preserving the solution quality.

Please remove the paragraphs from [0049] to [0067].